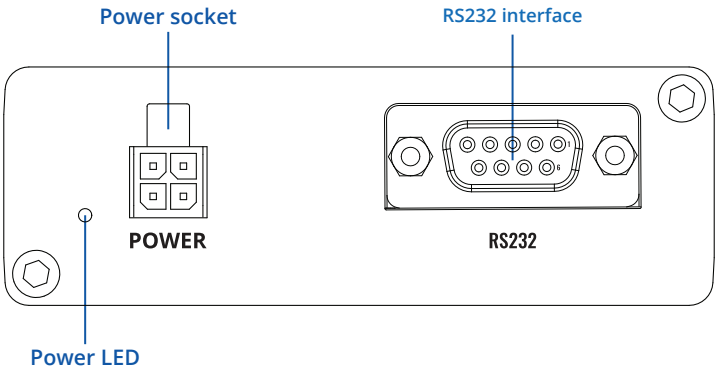
TELTONIKA | Networks

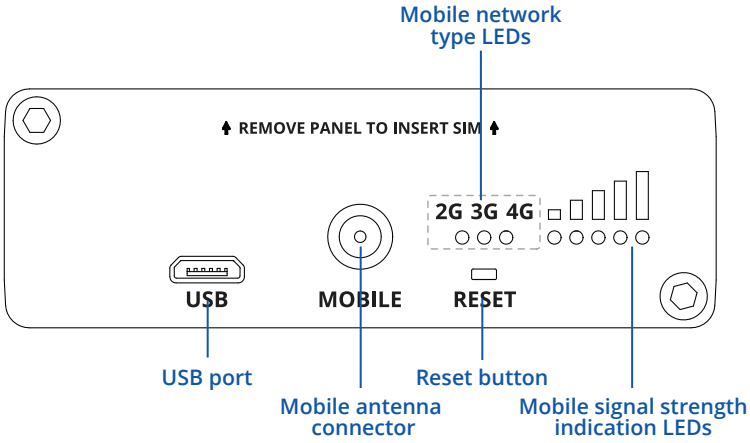
TRB142*2****

HARDWARE

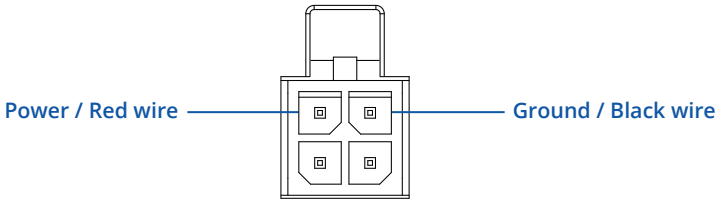
FRONT VIEW



BACK VIEW

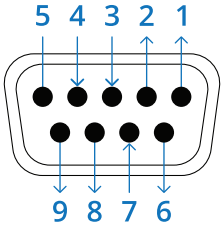


POWER SOCKET PINOUT



DB9 CONNECTOR PINOUT

1. Not used.
2. Received Data (RX) – output.
3. Transmitted data (TX) – input.
4. Not used.
5. Ground (GND).
6. Not used.
7. Request data to send (RTS) – input.
8. Clear data to send (CTS) – output.
9. Not used.



FEATURES

MOBILE

Mobile module	4G (LTE) – Cat 1 up to 10 Mbps, 3G – Up to 42 Mbps, 2G – Up to 236.8 kbps
Bridge	Direct connection (bridge) between mobile ISP and device on LAN
Status	Signal strength (RSSI), SINR, RSRP, RSRQ, EC/IO, RSCP Bytes sent/received
SMS/Call	SMS status, SMS configuration, Call utilities

NETWORK

Network protocols	TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, SSL v3, TLS, SSH, DHCP, SNMP, MQTT
Brige	Static routing
Connection monitoring	Ping Reboot, Periodic Reboot, LCP and ICMP for link inspection, Wget
Firewall	Port forwards, traffic rules, custom rules
DHCP	Static and dynamic IP allocation
QoS / Smart Queue Management (SQM) (planned)	Traffic priority queuing by source/destination, service, protocol or port
DHCP	Supported >25 service providers, others can be configured manually

SECURITY

Authentication	Pre-shared key, digital certificates, X.509 certificates
Firewall	Pre-configured firewall rules can be enabled via the WebUI, unlimited firewall configuration via CLI; NAT; NAT-T
Access control	Flexible access control of TCP, UDP, ICMP packets, MAC address filter

VPN

OpenVPN	Multiple clients and a server can run simultaneously, 27 encryption methods
OpenVPN Encryption	DES-CBC 64, RC2-CBC 128, DES-EDE-CBC 128, DES-EDE3-CBC 192, DESX-CBC 192, BF-CBC 128, RC2-40-CBC 40, CAST5-CBC 128, RC2-64-CBC 64, AES-128-CBC 128, AES-128-CFB 128, AES-128-CFB1 128, AES-128-CFB8 128, AES-128-OFB 128, AES-128-GCM 128, AES-192-CFB 192, AES-192-CFB1 192, AES-192-CFB8 192, AES-192-OFB 192, AES-192-CBC 192, AES-192-GCM 192, AES-256-GCM 256, AES-256-CFB 256, AES-256-CFB1 256, AES-256-CFB8 256, AES-256-OFB 256, AES-256-CBC 256
IPsec	IKEv1, IKEv2, with 14 encryption methods for IPsec (3DES, DES, AES128, AES192, AES256, AES128GCM8, AES192GCM8, AES256GCM8, AES128GCM12, AES192GCM12, AES256GCM12, AES128GCM16, AES192GCM16, AES256GCM16)
GRE	GRE tunnel, GRE tunnel over IPsec support
PPTP, L2TP	Client, Server instances can run simultaneously, L2TPv3, L2TP over IPsec support
ZeroTier	ZeroTier VPN client support
WireGuard	WireGuard VPN client and server support
Stunnel	Proxy designed to add TLS encryption functionality to existing clients and servers without any changes in the program's code
DMVPN	Method of building scalable IPsec VPNs
SSTP	SSTP client instance support

MONITORING & MANAGEMENT

WEB UI	HTTP/HTTPS, status, configuration, FW update, CLI, troubleshoot, system log, kernel log
FOTA	Firmware update from sever, automatic notification
SSH	SSH (v1, v2)
SMS	SMS status, SMS configuration
MQTT	MQTT Broker, MQTT publisher
JSON-RPC	Management API over HTTP/HTTPS
Modbus	Modbus TCP status/control
RMS	Teltonika Remote Management System (RMS)

SYSTEM CHARACTERISTICS

CPU	CPU ARM Cortex-A7 1.2 GHz CPU
RAM	128 MB (50 MB available for userspace)
FLASH memory	512 MB (200 MB available for userspace)

SERIAL COMMUNICATION MODES

Modes	Console, OverIP, Modem (Full or Partial control), Modbus RTU master, Modbus gateway, NTRIP client

MODBUS TCP SLAVE

ID filtering	Respond to one ID in range [1;255] or any
Allow remote access	Allow access through WAN
Custom registers	Modbus TCP custom register block, which allows to read/write to a file inside the router, and can be used to extend Modbus TCP slave functionality

MODBUS TCP MASTER

Supported functions	01, 02, 03, 04, 05, 06, 15, 16
Supported data formats	8 bit: INT, UINT; 16 bit: INT, UINT (MSB or LSB first); 32 bit: float, INT, UINT (ABCD (big-endian), DCBA (little-endian), CDAB, BADC)

MODBUS RTU MASTER

Suported baud rates	From 300 to 115200
Supported functions	01, 02, 03, 04, 05, 06, 15, 16
Supported data formats	8 bit: INT, UINT; 16 bit: INT, UINT (MSB or LSB first); 32 bit: float, INT, UINT (ABCD (big-endian), DCBA (little-endian), CDAB, BADC), HEX, ASCII
Number of data bits	From 5 to 8
Number of stop bits	1 or 2
Parity	None, Even, Odd
Flow control	None, RTS/CTS, Xon/Xoff

MODBUS DATA TO SERVER

Protocol	HTTP(S), MQTT

FIRMWARE / CONFIGURATION

WEB UI	Update FW from file, check FW on server, configuration profiles, configuration backup
FOTA	Update FW/configuration from server
RMS	Update FW/configuration for multiple devices
Keep settings	Update FW without losing current configuration

FIRMWARE CUSTOMIZATION

Operating system	RutOS (OpenWrt based Linux OS)
Supported languages	Busybox shell, Lua, C, C++
Development tools	SDK package with build environment provided

POWER

Connector	4-pin industrial DC power socket
Input voltage range	9 – 30 VDC (4-pin industrial socket), reverse polarity protection, surge protection >33 VDC 10us max
Power consumption	< 5 W

PHYSICAL SPECIFICATION

Casing material	Aluminum housing
Dimensions (W x H x D)	74.5 x 25 x 64.4 mm
Weight	135 g
Mounting options	Bottom and sideways DIN rail, Flat surface

PHYSICAL INTERFACES (PORTS, LEDS, ANNTENAS, BUTTONS, SIM)

RS232	RS232 interface, DB9 socket, 5 pin configuration with flow control
USB	Virtual network interface via USB
Status LEDs	3 x connection type status LEDs, 5 x connection strength LEDs, 1x Power LED
SIM	1 x SIM slot (Mini SIM – 2FF), 1.8 V/3 V
Power	4-pin power connector
Anntenas	1 x SMA for LTE
Reset	Restore factory settings button

OPERATING ENVIRONMENT

Operating temperature	-40 °C to 75 °C
Operating humidity	10 % to 90 % non-condensing
Ingress Protection Rating	IP30

REGULATORY & TYPE APPROVALS

Regulatory	CE/RED, EAC, RoHS, WEEE

EMI

Standards	Draft ETSI EN 301 489-1 V2.2.0, Draft EN 301 489-19 V2.1.0, Draft ETSI EN 301 489-52 V1.1.0
ESD	EN 61000-4-2:2009
RS	EN 61000-4-3:2006 + A1:2008 + A2:2010
EFT	EN 61000-4-4:2012
Surge protection	EN 61000-4-5:2014
CS	EN 61000-4-6:2014
DIP	EN 61000-4-11:2004

RF

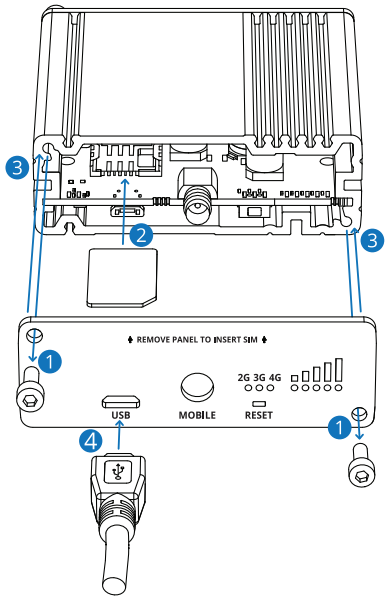
Standards	EN 300 511 V12.5.1, ETSI EN 301 908-1 V11.1.1, ETSI EN 301 908-2 V11.1.2, ETSI EN 301 908-13 V11.1.2

SAFETY

Standards	IEC 62368-1:2014(Second Edition), EN 62368-1:2014+A11:2017 EN 50385:2017 EN 62232:2017

HARDWARE INSTALLATION

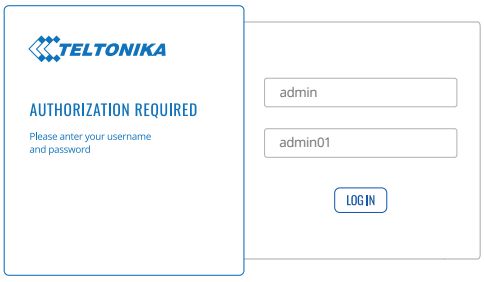
1. Unscrew two back panel hex bolts and remove the back panel.
2. Insert your SIM card into the SIM socket.
3. Attach the panel and tighten the hex bolts.
4. Attach the mobile antenna (max torque 0.4 N·m / 3.5 lbf·in) and connect the USB cable.



LOGIN TO DEVICE

1. Power on the device and connect the USB cable to your computer.
2. Allow the gateway to boot up. This might take up to 30 seconds.
3. Your computer's OS should detect the USB device and install the driver.
4. To enter the gateway's Web interface (WebUI), type http://192.168.2.1 into the URL field of your Internet browser.
5. Use login information shown in image A when prompted for authentication.
6. After logging in pay attention to the Signal Strength indication displayed in the Mobile widget (image B). To maximize the cellular performance try adjusting the antennas or changing the location of your device to achieve the best signal conditions.

A.



B.

TECHNICAL INFORMATION

Radio specifications	
RF technologies	2G, 3G, 4G
Max RF power	33 dBm@GSM, 24 dBm@WCDMA, 23 dBm@LTE
Bundled accessories specifications*	
Power adapter	Input: 0.4A@100-240VAC, Output: 9VDC, 0.5A, 4-pin plug
Mobile antenna	698~960/1710~2690 MHz, 50 Ω, VSWR<2, gain** 2 dBi, omnidirectional, SMA male connector

*Order code dependent.
**Higher gain antenna can be connected to compensate for cable attenuation when a cable is used. The user is responsible for the compliance with the legal regulations.

WHAT'S IN THE BOX?

STANDARD PACKAGE CONTAINS*

- TRB142
- 9 W PSU
- 1 x LTE antenna (magnetic mount, SMA male, 3 m cable)
- Micro-USB cable (0.8 m)
- 1 x hex key
- QSG (Quick Start Guide)
- RMS flyer
- Packaging box

 TRB142*2****	 9 W PSU	 1 X LTE ANTENNA (MAGNETIC MOUNT, SMA MALE, 3 M CABLE)
 MICRO-USB CABLE (0.8 M)	 1 X HEX KEY	

* For all standard order codes standard package contents are the same, execpt for PSU.

STANDARD ORDER CODES

PRODUCT CODE	HS CODE	HTS CODE	PACKAGE CONTAINS
TRB1420 03000	851762	8517.62.00	Standard Package

For more information on all available packaging options – please contact us directly.

AVAILABLE VERSIONS

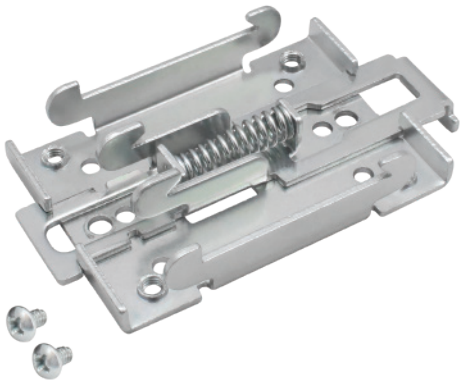
PRODUCT CODE	REGION (OPERATOR)	FREQUENCY
TRB142 0*****	Europe, the Middle East, Africa, Korea, Thailand, India, Malaysia	• 4G (LTE-FDD): B1, B3, B7, B8, B20, B28A • 3G: B1, B8 • 2G: B3, B8
TRB142 1*****	South America, Australia, New Zealand, Taiwan	• 4G (LTE-FDD): B1, B2, B3, B4, B5, B7, B8, B28 • 4G (LTE-TDD): B40 • 3G: B1, B2, B5, B8 • 2G: B2, B3, B5, B8
TRB142 2*****	China	• 4G (LTE-FDD): B1, B3 • 4G (LTE-TDD): B38, B39, B40, B41 • 3G (TDSCDMA): B34, B39 • 3G (WCDMA): B1 • 3G (CDMA 1x/EVDO): BC0 • 2G: B3, B8

The price and lead-times for region (operator) specific versions may vary. For more information please contact us.
* - Versions for other regions are under development.

MOUNTING OPTIONS

DIN RAIL KIT

Parameter	Value
Mounting standard	35mm DIN Rail
Material	Low carbon steel
Weight	57g
Screws included	Philips Pan Head screw #6-32×3/16, 2pcs
Dimensions	82 mm x 46 mm x 20 mm
RoHS Compliant	V



DIN RAIL KIT

- DIN Rail adapter
- Philips Pan Head screw #6-32×3/16, 2pcs for RUT2xx/RUT9xx

ORDER CODE	HS CODE	HTS CODE
PR5MEC00	73269098	7326.90.98

For more information on all available packaging options – please contact us directly.

COMPACT DIN RAIL KIT

Parameter	Value
Mounting standard	35mm DIN Rail
Material	ABS + PC plastic
Weight	6.5 g
Screws included	Philips Pan Head screw #6-32×3/16, 2pcs
Dimensions	70 mm x 25 mm x 14,5 mm
RoHS Compliant	V

DIN RAIL KIT

- Compact plastic DIN Rail adapter (70x25x14,5mm)
- Philips Pan Head screw #6-32×3/16, 2pcs

ORDER CODE	HS CODE	HTS CODE
PR5MEC11	73269098	7326.90.98

For more information on all available packaging options – please contact us directly.

SURFACE MOUNTING KIT

Parameter	Value
Mounting standard	Flat surface mount
Material	ABS + PC plastic
Weight	2x5 g
Screws included	Philips Pan Head screw #6-32×3/16, 2pcs
Dimensions	25 mm x 48 mm x 7.5 mm
RoHS Compliant	V

DIN RAIL KIT

- Surface mounting kit
- Philips Pan Head screw #6-32×3/16, 2pcs

ORDER CODE	HS CODE	HTS CODE
PR5MEC12	73269098	7326.90.98

For more information on all available packaging options – please contact us directly.

TRB142 SPATIAL MEASUREMENTS & WEIGHT

MAIN MEASUREMENTS

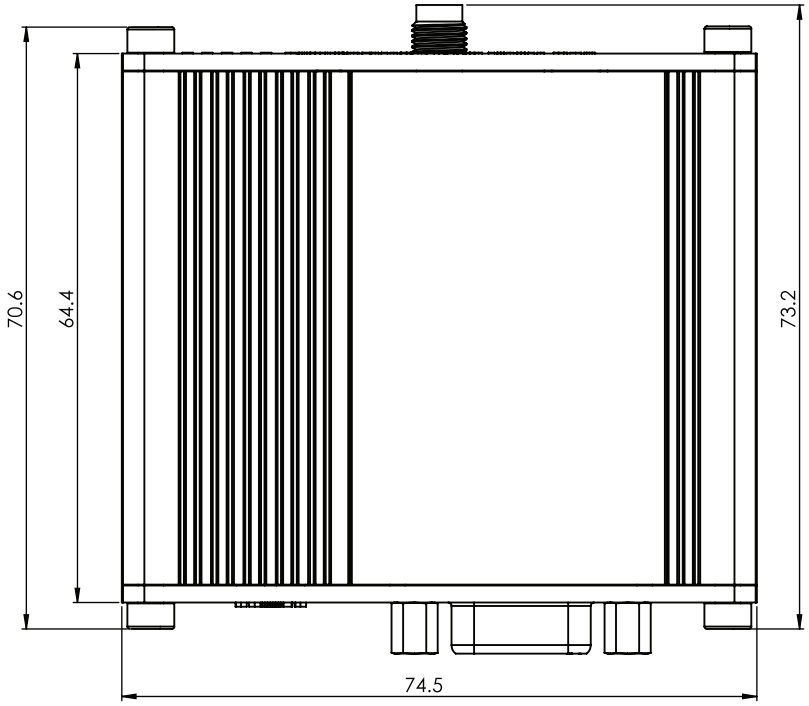
W x H x D dimensions for TRB142

Device housing*:	74.5 x 25 x 64.4 mm
Box:	173 x 71 x 148 mm

*Housing measurements are presented without antenna connectors and screws; for measurements of other device elements look to the sections below.

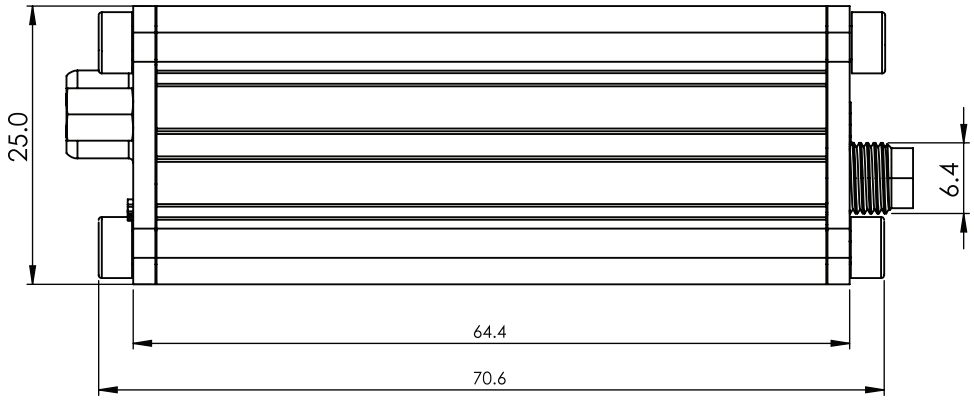
TOP VIEW

The figure below depicts the measurements of TRB142 and its components as seen from the top:



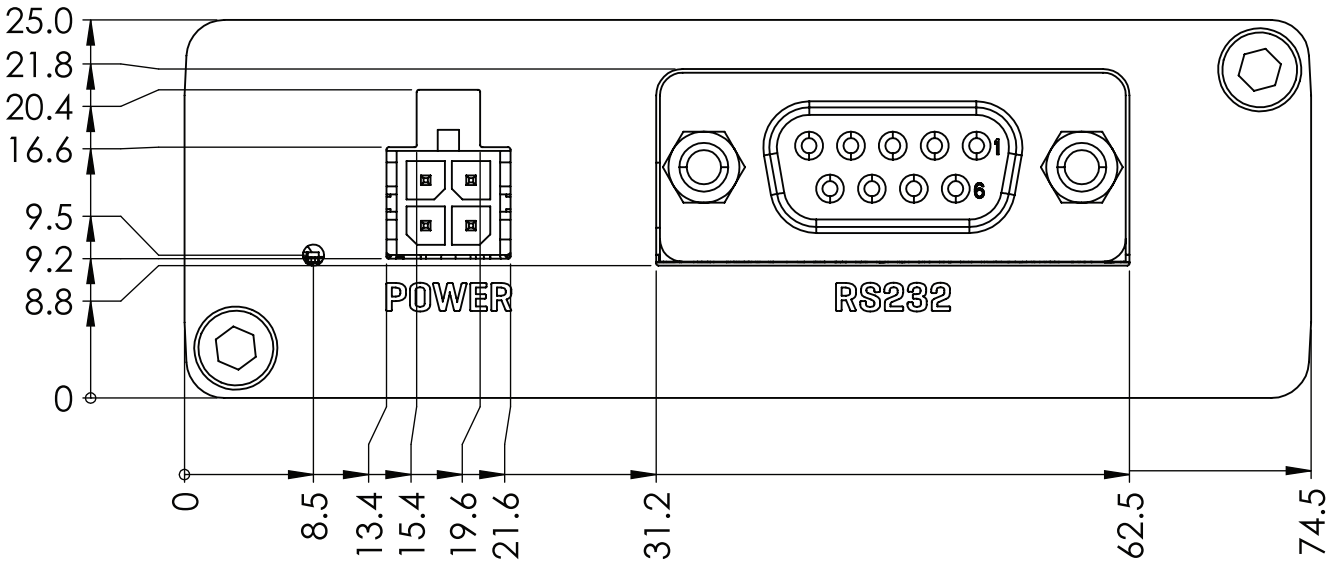
RIGHT VIEW

The figure below depicts the measurements of TRB142 and its components as seen from the right side:



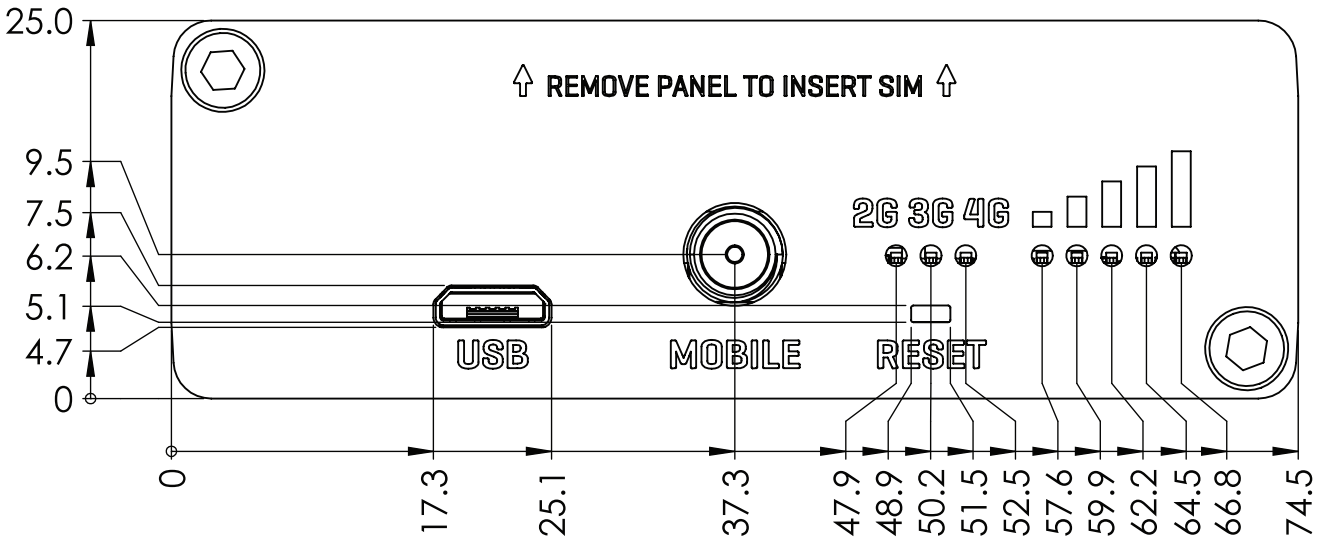
FRONT VIEW

The figure below depicts the measurements of TRB142 and its components as seen from the front:



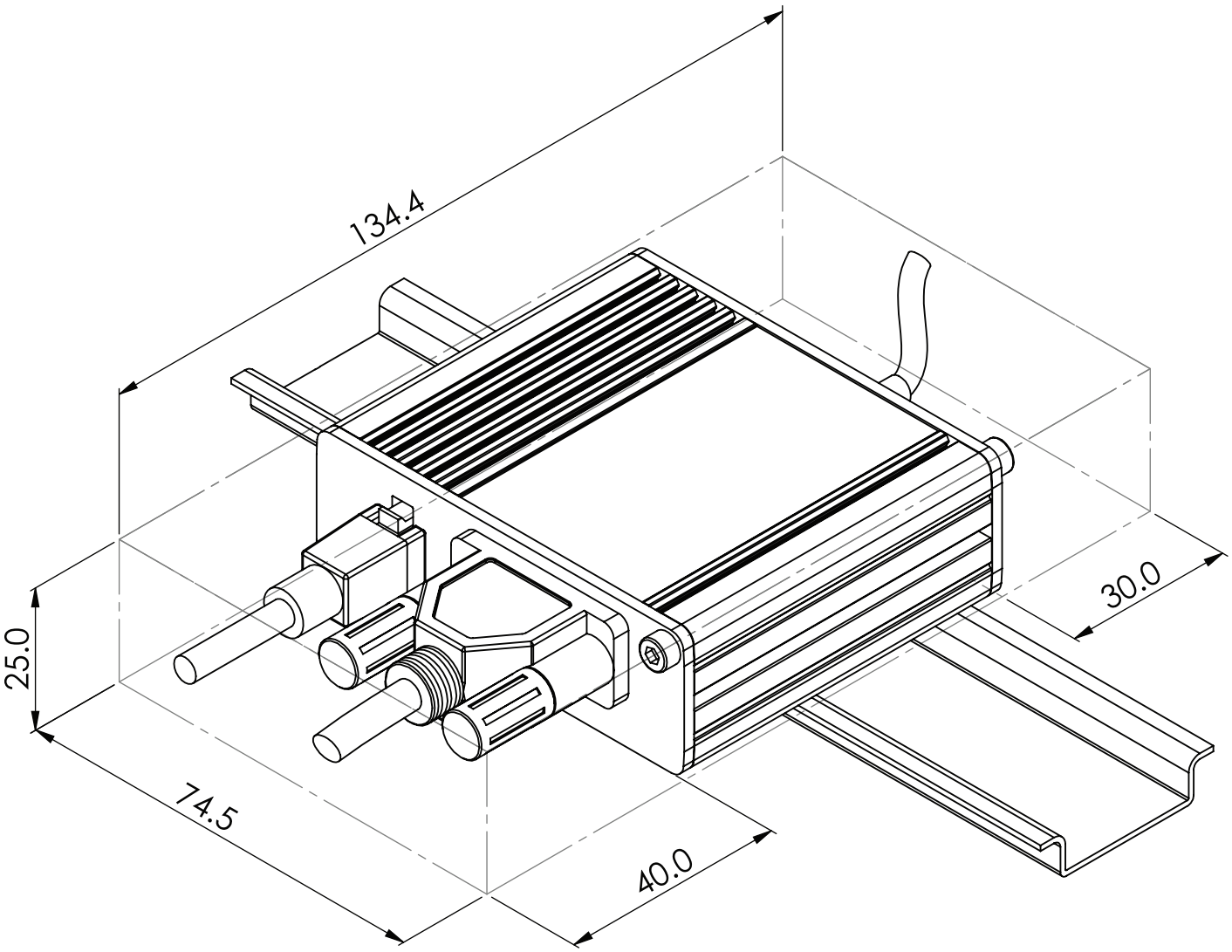
REAR VIEW

The figure below depicts the measurements of TRB142 and its components as seen from the back:



MOUNTING SPACE REQUIREMENTS

The figure below depicts an approximation of the device's dimensions when cables and antennas are attached:



DIN RAIL

The scheme below depicts protrusion measurements of an attached DIN Rail: